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THE USE OF AQUAPONIC SYSTEM TO PRODUCE ORGANIC PLANTS AND THE EVALUATION OF SUITABLE CONDITIONS REQUIRED FOR IMPROVED PLANT GROWTH

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Abstract. The need to improve plant growth using special means such as biological methods and chemicals are gradually making the agricultural sector stand out. The growing food insecurity, uncontrollable rise in food prices, water scarcity and poverty, especially in developing countries, coupled with concerns for climatic patterns, have resulted in a significant global challenge.[1,2,3] Aquaponics is an agricultural system that employs a combination of aquaculture and hydroponics synergistically.[4] This method employs strictly biological means for the sustainable cultivation of plants without the application of chemicals (fertilizers) using the cultivation of fish with moderate water uptake.

The objective of the aquaponic system is to make use of nutrients released by fish for the growth of food crops (Vegetables). The inclusion of bio-filters (Trickling filters) provides a solution to the treatment of wastewater released to the fish tank from the different compositions of the fish faeces, the main aim of which is to nitrify and eliminate Biochemical Oxygen Demand (BOD) which causes harm to the plants.[5]

The purpose of this review is to unravel the benefits and effective use of the aquaponic system, focus on the possibilities of investigating, evaluating and choosing suitable conditions and techniques that can be used in any part of the world. To find a healthy method of cultivating and improving plant growth using aquaponics, in addition to finding suitable fish for the system and a simple approach to the use of aquaponics system on a small scale for plant cultivation.

Hence, this review will expose agriculturists to venture into new technology to enhance the production of plants. The technology has its advantages and disadvantages which will be explained in this paper for further study.

References

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